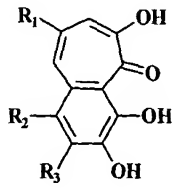
WHAT IS CLAIMED IS:

1. A benzotropolone derivative represented by the general formula,



wherein R_1 is a hydrogen atom, hydroxyl group, alkoxy group, alkyl group, aryl group or is a heterocyclic group selected from the group consisting of an indolyl group, phenyl group, benzyl group, pyridinyl group, pyrrolyl group and thiophenyl group;

wherein R_2 is a hydrogen atom, hydroxyl group, alkoxy group, alkyl group, aryl group or is a heterocyclic group selected from the group consisting of an indolyl group, phenyl group, benzyl group, pyridinyl group, pyrrolyl group and thiophenyl group; and

wherein R_3 a hydrogen atom, hydroxyl group, alkoxy group, alkyl group, aryl group or is a heterocyclic group selected from the group consisting of an indolyl group, phenyl group, benzyl group, pyridinyl group, pyrrolyl group and thiophenyl group.

2. The benzotropolone derivative of claim 1, wherein the derivative is neotheaflavate B or a salt or an ester of thereof.

3. The benzotropolone derivative of claim 1, wherein the derivative is EGCGCa (Epigallocatechinocatechol gallate) or a salt or an ester of thereof.

4. A composition comprising a pharmaceutical or a nutraceutical or a combination thereof, wherein the pharmaceutical or the nutraceutical is effective as an anti-inflammatory agent or antioxidant, wherein the pharmaceutical, the nutraceutical or the combination thereof comprises, as an active ingredient, an effective amount of a benzotropolone derivative as in claim 1.

5. The composition of claim 4, wherein the pharmaceutical or the nutraceutical comprises neotheaflavate B or EGCGCa or a salt or an ester thereof with the proviso that the benzotropolone derivative is not the neotheaflavate B or EGCGCa.

6. The composition of claim 5, wherein the pharmaceutical or the nutraceutical comprises the neotheaflavate B or a salt or an ester thereof.

7. The composition of claim 5, wherein the pharmaceutical or the nutraceutical comprises the EGCGCa or a salt or an ester thereof.

8. The composition of claim 4, wherein the neotheaflavate B or EGCGCa is present in full amount effective as an anti-inflammatory agent or antioxidant.

9. An anti-inflammatory agent containing, as the active ingredient, an effective amount of a benzotropolone derivative or a pharmaceutically acceptable salt thereof as claimed in claim 1.

10. A method for treating an inflammatory condition comprising administering to a subject in need thereof a composition comprising an amount of a purified benzotropolone derivative effective to treat the inflammatory condition.

11. The method according to claim 10 wherein said benzotropolone derivative in the composition administered is at a dosage of between about 0.5 and about 1000 mg per kilogram body weight per day.

12. The method according to claim 10 wherein said benzotropolone derivative in the composition administered is at a dosage of between about 1 and about 500 mg per kilogram body weight per day.

13. The method according to claim 10 wherein said benzotropolone derivative is administered topically.

14. The method according to claim 10 wherein said benzotropolone derivative is administered orally.

15. The method according to claim 10 wherein said benzotropolone derivative is administered parenterally.

16. A method of treating or reducing the progression of an inflammatory condition comprising administering to a subject in need thereof a composition comprising a benzotropolone derivative and a carrier selected from the group consisting of a pharmaceutically acceptable carrier, veterinary acceptable carrier, dietary supplement carrier and food, wherein said subject is a human or a veterinary animal.

17. The method of claim 16, wherein the carrier is a pharmaceutically acceptable carrier.

18. The method of claim 16, wherein the subject is a human.

19. The method of claim16, wherein the carrier is a food.

20. The method of claim 16, in which the composition is a dietary supplement.

21. A method for neutralizing free radicals in a patient comprising: administering to the patient in need of such treatment an effective amount of a composition comprising a pharmaceutical or nutraceutical agent comprising a benzotropolone derivative or at least one compound selected from the group consisting of theaflavin, theaflavin-3-gallate, theaflavin-3,3'-gallate, epitheaflavic acid, epitheaflavic acid gallate, and EGCG wherein said compound is purified and is present at a concentration of at least about 0.5%.

22. The method of claim 21, wherein the benzotropolone derivative is present at a concentration of at least about 0.5%.

23. The method of claim 21, wherein the composition further comprises a second benzotropolone derivative that is not already selected.

24. The method of claim 21, wherein the second benzotropolone derivative is neotheaflavate B or EGCGCa or a salt or an ester thereof.

25. The method of claim 21, wherein the composition comprises the pharmaceutical agent.

26. The method of claim 21, wherein the composition comprises the nutraceutical agent.

27. A method for synthesizing a benzotropolone derivative by reacting a molecule comprising a pyrogallol unit with a molecule comprising a catechol unit in the presence of a peroxidase and H_2O_2.

28. The method of claim 27, wherein the reacting molecules are epicatechin (EC) and epigallocatechin (EGC).

29. The method of claim 27, wherein the reacting molecules are epicatechin (EC) and epigallocatechin gallate (EGCG).

30. The method of claim 27, wherein the reacting molecules are epicatechin gallate(ECG) and epigallocatechin (EGC).

31. The method of claim 27, wherein the reacting molecules are epicatechin gallate(ECG) and epigallocatechin gallate(EGCG).

32. The method of claim 27, wherein the reacting molecules are catechin (C) and epigallocatechin (EGC).

33 The method of claim 27, wherein the reacting molecules are catechin (C) and epigallocatechin gallate(EGCG).

34. The method of claim 27, wherein the reacting molecule is epicatechin gallate (ECG).

35. The method of claim 27, wherein the reacting molecules are EC and ECG.

36. The method of claim 27, wherein the reacting molecules are C and ECG.

37. The method of claim 27, wherein the reacting molecules are C and gallic acid.

38. The method of claim 27, wherein the reacting molecules are EC and gallic acid.

39. The method of claim 27, wherein the reacting molecules are ECG and gallic acid.

40. The method of claim 27, wherein the reacting molecules are EGC and catechol.

41. The method of claim 27, wherein the reacting molecules are EGCG and catechol.

42. The method of claim 27, wherein the reacting molecules are gallic acid and catechol.

43. The method of claim 27, wherein the reacting molecules are pyrogallol and catechol.

44. The method of claim 27, wherein the reacting molecules is pyrogallols.